

## **OPTICAL POSITION ENCODER DEVICE**

### **ABSTRACT OF THE DISCLOSURE**

An optical device that includes a grating (for example a moving reflective grating) and a light source disposed opposing a predetermined side of the grating. The optical device  
5 also includes a first reference grating (e.g., a fixed grating) disposed between the light source and the grating, a detector disposed opposing the predetermined side of the grating and a second reference grating (e.g., a fixed grating) disposed between the detector and the grating. The grating, first reference grating and light source are configured for movement relative to one another. For example, the grating can be moveable while the light source and first  
10 reference grating are fixed.

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